Researchers’ molecule stops caries in lab rats

By Jeff Hansen, UAB News

University of Alabama at Birmingham researchers have created a small molecule that prevents or impedes tooth caries in a preclinical model. The inhibitor blocks the function of a key virulence enzyme in an oral bacterium, a molecular sabotage that is akin to throwing a monkey wrench into machinery to jam the gears.

In the presence of the molecule, Streptococcus mutans — the prime bacterial cause of dental caries — is unable to make the protective and sticky biofilm that allows it to glue to the tooth surface, where it eats away tooth enamel by producing lactic acid.

This selective inhibition of the sticky biofilm appears to act specifically against S. mutans, and the inhibitor drastically reduced dental caries in rats fed a caries-promoting diet.

“Our compound is drug-like, non-bactericidal and easy to synthesize, and it exhibits very potent efficacy in vivo,” the researchers explained in an article in Scientific Reports. It is “an excellent candidate that can be developed into therapeutic drugs that prevent and treat dental caries.”

About 2.3 billion people worldwide have dental caries in their permanent teeth, according to a 2015 Global Burden of Disease study. Current practices to prevent cavities, such as mouthwash and tooth brushing, indiscriminately remove oral bacteria through chemical and physical means and have limited success. Caries is the Latin word for rottenness.

“If we have something that can selectively take away the bacterium’s ability to form biofilms, that would be a tremendous advance,” said Sadanandan Velu, PhD, associate professor of chemistry in the UAB College of Arts and Sciences and a lead researcher in the study.

“This is particularly exciting in the broad sense of targeting microbiota using chemical probes tailored to the specific pathogen within a complex microbial community,” said Hui Wu, PhD, professor of pediatric dentistry, UAB School of Dentistry, director of UAB Microbiome Center and a lead investigator in the study.

Wu’s expertise is bacteriology and biochemistry, and Velu’s is structure-based drug design. Their interdisciplinary study also included researchers from the department of microbiology in the UAB School of Medicine.

Research details

The glucan biofilm is made by three S. mutans glucosyltransferase, or Gtf, enzymes. The crystal structure of the Gtf glucosyltransferase is known, and the UAB researchers used that structure to design a lead molecule.

“Recent publication of the crystal structure of streptococcal glucosyltransferase, or Gtf, makes it possible to design and test new drugs against streptococcal dental caries,” Wu said.

Researchers used Velu’s “structure-based drug design” to create a lead compound.

About 70% of the caries in children can be prevented by the use of fluoride. A molecule created by University of Alabama researchers blocks formation of the sticky biofilm that enables Streptococcus mutans to attach itself to the tooth surface and eat away the enamel.

Caries formation is a complex process involving a “dental biofilm microbe community,” Wu said, and the molecule acts specifically against S. mutans, the cause of dental caries.

Wu and Velu’s research is the first to employ a structure-based drug design technique to find a new glycobiology inhibitor that blocks the function of the key virulence enzyme, glucosyltransferase.

The team grew the bacteria in the presence of the molecule and specifically looked at the symptoms of the virulent bacteria to see whether the molecule could block the function of the enzyme.

By analyzing the results of the preclinical model, Wu and Velu concluded that their inhibitor drastically reduced dental caries in the rat models.

Wu said that, once the molecule is modified and synthesized in the form of a pharmaceutical drug, “it can be specifically used to prevent dental caries.”

Wu and Velu’s patent is pending.

• See CARIES, page A2

ADVANCED RESTORATIVES

Multisurface luting cement adheres to zirconia, lithium disilicate and other advanced restorative substrates.

• page A5

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SEPTEMBER 2017 — Vol. 12, No. 9

DON’T BE FooLED BY FAKEs

Company stops numerous distributors at IDS 2017 from selling knock-offs of its patented, trademarked mixing tips.

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CEMENT FOR ADVANCED RESTORATIVES

Multisurface luting cement adheres to zirconia, lithium disilicate and other advanced restorative substrates.

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IMPLANT TRIBUNE

SEPTEMBER: AAP TO MEET IN BOSTON

Focus is on ‘Navigating the Future of Periodontology’

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INDUSTRY NEWS

A2–A7

• NuSmile Ltd., a worldwide leader in pediatric esthetic restorative dentistry, will present the NuSmile Summit for pediatric dentists, Jan. 19-20, in Clearwater Beach, Fla.

• Sulzer Mixpac continues to enforce its rights. Avoid fakes by looking for the candy-color quality seal.

• Envy Self-Stick, Self-Adhesive Cement by Essential Dental Systems: Luting cement adheres to zirconia and other advanced restorative materials.

• New photonic design uniformly distributes high-def light. Designs for Vision LED DayLite Micro HDi headlights optically focus the light from the LED to provide 45 percent more light with uniform distribution.

• Improve your leadership skills today. Being a good dentist doesn’t make you a good leader — but mastering these skills can help.

IMPLANT TRIBUNE

B1–B4

• AAP will be ‘Navigating the Future of Periodontology’ in Boston in September.

• Periodontal issues may conflict with conception.

• AAID releases preliminary program for its 66th educational conference in San Diego.
Summit planned for pediatric dentists

NuSmile Ltd., a worldwide leader in pediatric esthetic restorative dentistry, will present the NuSmile Summit, Jan. 19-20, in Clearwater Beach, Fla. Attendees will be able to create their own schedule by choosing courses that best meet their needs. Attendees can receive up to 16 C.E. credits from courses offered by several of the world’s most respected experts in all facets of pediatric dentistry.

“The 2018 NuSmile Summit is designed to help pediatric dentists and general practitioners who treat pediatric patients keep abreast of the latest advances in pediatric dentistry,” said Diane Johnson Krueger, NuSmile founder and CEO. “Our topics and speakers have been carefully chosen to enable attendees to take their practices to the next level regarding both treatment and practice management.

“We’re very excited about the line-up of distinguished experts we’ve been able to assemble to lead our seminars, including several directors from the renowned Institute for Pediatric Dentistry,” said Mike Loessberg, NuSmile director of sales, U.S. and Canada. “The theme of the NuSmile Summit is Bringing You Next-Level Education to reflect our passion for helping dentists significantly enhance both the pediatric treatment their practices provide and the productivity and profitability their practices deliver.”

One of the Summit’s highlights will be the popular “Zirconia REINVENTED” hands-on workshop, in which Dr. David Salar and Dr. David Evans will provide comprehensive training in the art of placing zirconia crowns for every primary tooth. Other treatment courses include “Radiographic Findings of Pediatric Diseases” by Dr. Shailesh Kottil, “Sedation Protocol” by Dr. Steven Wilson and a “New Approaches to Pediatric Pulp Therapy” workshop by Dr. Jessica Lee.


The Summit will be at the Grand Wyndham Resort in Clearwater Beach (recently named the “81 Beach in the U.S.” by Trip Advisor). Dentists may preregister at (800) 346-5133 or www.nusmile.com.

(Source: NuSmile)

About NuSmile

Shortly after its 1991 founding in Houston by Diane Johnson Krueger, NuSmile invented its first esthetic pediatric crown. In the 25 years since, more than 4 million NuSmile crowns have been used in restorations.

The company’s offerings include the NuSmile ZR Zirconia crown system with Try-In crowns to prevent saliva/blood contamination and NuSmile BioCem® BioActive Cement for exceptional bond strength and handling. NuSmile Signature Porefilled crowns, NuSmile SSC Pre-contoured crowns, and NuSmile NeoMTA® pulp therapy medication.

According to the company, NuSmile prides itself on customer care, commitment to research and support of the American Academy of Pediatric Dentistry, International Association of Pediatric Dentistry, Canadian Academy of Pediatric Dentistry/Académie Canadienne de Dentisterie Pédiatrique, the Institute for Pediatric Dentistry and other organizations dedicated to the dental care of children and the dentists who serve them.

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Sulzer continues to enforce its rights

By Sulzer Mixpac Staff

Sulzer Mixpac Ltd. operates globally in the field of static mixing tips, cartridges and dispensing devices for the dental sector. In recent times, the company reports, substantially identical copies of the static mixing tips for two-component cartridges and syringes have increasingly been discovered. These copies by other manufacturers are not subject to Sulzer’s quality controls and are therefore not covered by its warranty. In the interests of its clients, Sulzer will continue to take legal steps against all such copies.

With its ruling in 2010, the Cologne District Court determined that the mixing tips forming the basis of Sulzer’s complaint represent unfair copies of the mixing tips of Sulzer Mixpac Ltd. and resulted in an avoidable deception with respect to the commercial origin (Court ref. 33 O 306/09). This decision was also then confirmed in the second instance by the Cologne Higher Regional Court with its 2011 ruling (Court ref. 6 U 89/10).

Sulzer has continued to enforce these rights over the years in many dozens of court actions or out-of-court settlements with slavish imitators of its mixing tips. The company has successfully enforced its patent, trademark or other IP rights against certain infringing colored mixing tips in many countries, including Germany, Japan, the U.S. and the U.K.

Despite these measures, in 2016 and 2017 further unfair slavish copies of the mixing tips and/or patent-infringing mixing tips were discovered and action was taken, for example, in Germany. Shortly before the IDS 2017, several distributors of mixing tips infringing EP0885651 in Germany were stopped by accepted court decisions or out-of-court settlements. In addition, patent infringement actions were filed at the Dusseldorf District Court against three Korean suppliers of mixing tips infringing EP0885651 who were offering them at the IDS 2017. B&E Korea Co., Han Da Chemical and HDI Inc. All three infringers have now accepted the preliminary injunctions as a final binding decision. In addition, the Korean manufacturer of these patent-infringing mixing tips, Seil Global, has agreed to respect Sulzer’s rights worldwide for all members of the patent family for their remaining lifetimes.

In addition, 11 preliminary injunctions due to unfair competition were obtained from the Cologne District Court against various providers of slavish copies of Sulzer’s mixing tips during the IDS 2017 by which inter alia the offering, advertising and marketing of these copied mixing tips for the dental sector were prohibited. Furthermore a preliminary injunction from the Dusseldorf District Court was served at IDS 2017 on an exhibitor offering dynamic mixers infringing Sulzer’s European patent, EP1943012.

Sulzer is committed to protecting its products. Genuine MIXPAC™ tips can be identified by the MIXPAC name stamped on the retaining ring and the candy-color quality seal.

About Sulzer Mixpac

The 850-employee Sulzer Mixpac is a leading manufacturer and supplier of cartridge-based metering, mixing and dispensing systems and disposable mixers for reactive multicomponent materials. It is part of the Sulzer group international network based in Switzerland with subsidiaries are in the U.S., U.K. and China.
Luting cement adheres to zirconia and other advanced restorative materials

Tack curing, easy cleanup and virtually no post-op sensitivity

Today’s dentists can choose between a number of proven restorative materials. There has been a large decline in porcelain fused to metal (PFM) crown restorations in favor of increasingly popular lithium disilicate and zirconia restorations. These newer materials are stronger and more esthetic. However, many practitioners have found that most self-adhesive luting cements do not interact well with these materials and other substrates.

According to Essential Dental Systems Inc., its Envy Self-Etch, Self-Adhesive Cement is a new advancement in multi-surface adhesive technology — even solving the problem of adhesion to zirconia. The company describes Envy as a “simple, time-saving, cost-effective, one-step solution.” Envy’s chemistry provides tack curing for easy cleanup and ensures virtually no post-op sensitivity, the company asserts.

Clinicians such as Steven Richards, DMD, who has placed more than 100 units with Envy, appreciate the versatility of the cement. Richards, of Cedar Spring Family Dentistry in Spartanburg, S.C., said: “Envy provides more consistent bonding with all zirconia and all ceramics. The ‘Tack-and-Wave’ cleanup is easy for both the dentist and patient, and we have had no reports of post-operative sensitivity.”

Complete information about Envy, as well as a limited-time promotion, are available at www.edsdental.com/envy.

(Source: Essential Dental Systems)
New photonic design uniformly distributes high-def light

By Designs for Vision Staff

Designs for Vision is introducing an advanced photonic design that provides uniform light distribution with maximum intensity. The patent-pending headlights optically focus the light from the LED to provide 45 percent more light with uniform distribution.

The new LED DayLite® Micro HD™ uses the new high-definition imaging in an ultra-lightweight headlight in combination with the new Micro power pack. According to the company, the Micro is the market’s lightest and smallest power pack. The complete unit includes two power packs, and each power pack can run up to 10 hours.

Designs for Vision also has added high-definition imaging to the LED DayLite WireLess Mini HDi, providing a lightweight cordless solution with light intensity comparable to many cored headlights. You can choose high-definition imaging with either a wired or wireless design to meet your preference, and either HDi headlights will illuminate the entire oral cavity.

Designs for Vision’s WireLess headlights free you from being tethered to a battery pack. The simple modular designs uncouple the headlights from a specific frame or single pair of loupes. Prior technology married a cordless light to one pair of loupes via a cumbersome integration of the batteries and electronics into the frame. The compact design of the LED DayLite WireLess headlights are independent of any frame/loupes.

Designs for Vision is also featuring the “REALITY five-star-rated” Micro 3.5EF Scopes, which use an innovative optical design that reduces the size of the prismatic telescope by 50 percent and reduces the weight by 40 percent — while providing an expanded-field, full-oral-cavity view at 3.5x magnification. Building on an established award-winning design, the newest addition to the Micro Series line is the Micro 4.5EF Scopes, which reduce both the size and weight of the telescopes by 44 percent.

New location

You can see the “Visible Difference®” by visiting Designs for Vision in booth No. 1034 at the American Academy of Periodontology meeting, booth No. 611 at the Southwest Dental Conference or booth No. 410 at the Ohio Dental Association meeting — or arrange a visit in your office by contacting the company at (800) 345-4009 or info@dvimail.com.
Running a successful dental practice calls on not just your expertise in dentistry but also on your leadership abilities. Being an effective leader will help you focus your staff and your partners on creating and maintaining the kind of dental practice that you can be proud of.

The following eight areas of focus can help practice owners and other dental professionals develop and strengthen leadership skills:

1. **Promote creativity.** When employees are encouraged to express their creativity, they stretch their limits. Foster this by setting staff goals and supporting employees as they work toward those achievements.

2. **Display your passion.** If employees see that you care about your work and your practice, they’ll be more likely to care too. Let your passion inspire others, and they, in turn, will inspire you.

3. **Listen.** If you don’t know what’s happening in your practice or among your workers, you can’t fix problems or address concerns. Ask questions, check in on staff members in different areas of your practice and find out what’s going on. The more you know, the better you’ll be able to reach your workers and address their needs.

4. **Be honest.** If things have gone wrong or are less than perfect in your practice, own up to it and look for ways to improve. Effective leaders don’t deny weaknesses and mistakes; they learn from them.

5. **Communicate.** People who work with you need to know what direction things are headed. Be sure employees are informed about changes and developments in the practice, particularly those that affect them.

6. **Be a role model.** If you’re asking people to work longer hours, don’t clock out early. If you want staff to abide by a new workflow practice, be sure you’re taking part. Build trust by practicing what you preach, and employees may be increasingly receptive to your leadership.

7. **Be positive.** People will likely be more agreeable if they feel your guidance will lead to something good. Be confident about the direction your practice is taking.

8. **Be open.** Every day you have the opportunity to learn something new, either from your surroundings, what you read, what you observe or the people you work with. Being a leader means continuing to grow and change so you can take your practice with you on the journey.

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September meeting will focus on ‘Navigating the Future of Periodontology’

By Sierra Rendon, Managing Editor

As always, the AAP has a compelling welcome letter. As the tide continues to change on the periodontal specialty, this meeting will equip you with the knowledge and skills to steer your career in the direction of success, Griffin asserts in his program letter.

As always, the AAP has a compelling educational program planned, including hands-on workshops, seminars and symposiums created specifically to challenge and inspire attendees.

Griffin notes the AAP is especially excited to welcome New York Times bestselling author Alison Levine, whose climbing expeditions to Mount Kilimanjaro and Mount Everest may just motivate you to ascend new heights in your own life and career. Levin, who wrote “On the Edge: The Art of High-Impact Leadership,” will speak as part of the opening session on Sept. 10.

The AAP believes that whether you are a seasoned practitioner, a member of the periodontal practice staff or a clinician who is just starting out in periodontics, you will find courses to suit you at this year’s meeting.

Back by popular demand is the interactive Dental Hygiene Symposium, which offers a hygienist’s perspective on issues such as implant maintenance and endoscopic periodontal debridement.

In addition to the Student/New Periodontist Series (a series designed to help jumpstart new careers in periododontics), the academy will also host its first Periodontist Series (a series designed to help those seeking a new position or those seeking new associates.

Additionally, the new “Perio Park” will serve as a key exhibit hall destination, offering networking opportunities, refreshments and camaraderie with colleagues.

The annual meeting offers plenty of opportunities to go “where everybody knows your name.” From various alumni receptions to the Welcome Reception (Sept. 10), there’s sure to be associates you’ll want to catch up with...or maybe meet for the first time.

While catching up with colleagues is always an important part of meetings, don’t forget about all of the new products and technology you can learn about and purchase while at the AAP. The exhibit hall will provide more than 350 booths full of trusted implant creators, dynamic new technology and maybe even some new products you did not even know you needed!

What else is new at the AAP 103rd Annual Meeting? More than 20 new speakers, a host of fresh periodontal-related topics and VIP registration. To learn more or to register, visit perio.org.

AAP ‘navigates’ in Boston

Boston will be the site of the American Academy of Periodontology 103rd Annual Meeting from Sept. 9-12. Photo/www.freeimages.com

Research suggests women of fertile age should take care of oral health in order to avoid delayed conception. (Photo/Provided by Solis Images/Shutterstock)

Periodontal issues may conflict with conception

By Dental Tribune International

Helsinki, Finland — In a new study recently carried out by researchers at the University of Helsinki, it was found that the common periodontal pathogen Porphyromonas gingivalis may inhibit conception in young women.

According to the Global Burden of Disease Study, severe chronic periodontitis is the sixth most common medical condition in the world. Up until now, no data on the influence of periodontal bacteria on conception has been available.

The study investigated whether microbiological and serological markers of periodontitis are associated with conception and involved 256 women aged between 19 and 42 who had stopped contraception in order to become pregnant.

The participants were initially interviewed on their medical history, smoking habits, oral hygiene habits, previous dental visits and socioeconomic status.

Oral examinations established the presence of carious lesions and periodontal disease (based on pocket probing and clinical periodontal attachment loss). In order to detect periodontal pathogens and the associated antibodies, the researchers analysed collected serum and stimulated saliva.

With the diagnosis of bacterial vaginosis, gynaecological speculum examinations were performed and...
vaginal swabs were taken. Participants were followed for 12 months to see whether they had become pregnant. According to the results, P. gingivalis in the saliva was significantly more common among those who did not conceive than among those who did (8.3 percent compared with 2.1 percent). Levels of salivary and serum antibodies against the pathogen were also significantly higher in the women who did not become pregnant. Furthermore, statistical analysis showed the finding was independent of other risk factors contributing to conception, such as age, socio-economic status, previous deliveries or clinical periodontal disease.

“Our study does not answer the question on possible reasons for infertility but it shows that periodontal bacteria may have a systemic effect even in lower amounts, and even before clear clinical signs of gum disease can be seen,” said periodontist and lead author Dr. Susanna Paju.

The study group was fairly homogenous regarding socio-economic status and general health. However, study limitations included a lack of information on the exact discontinuation date of contraception, the length of use of any birth control methods and whether delayed conception was attributable to the participants or to their spouses.

The study, titled “Porphyromonas gingivalis may interfere with conception in women”, was published online in June in the Journal of Oral Microbiology.

AAID releases preliminary program for its 66th educational conference in San Diego

The American Academy of Implant Dentistry (AAID) released a preliminary program for its 66th Annual Educational Conference in San Diego, Calif., from Oct. 11-14. A small sample of the main podium presentations include:

- Jaime Locada, DMD, FFAID, DABOI/ID, and Brian J. Goodacre, DDS, “Digital Planning in Implant Dentistry: From Treatment Planning to 3-D Planning”
- Paulo Malo, DDS, PhD, “Recent Advancements in Graftless Solutions, Zygomatic and Tilted Implants”
- Georgios Romanos, DDS, PhD, “Implant Dentistry for Compromised Clinical Cases Without Bone Grafting”
- O. Hilt Tatum, DDS, FFAID, DA-BOI/ID, “Predictable Restoration of Alveolar Bone”

More than 1,000 implant dentistry professionals are expected to travel from around the world to learn from the top experts in implant dentistry, as well as from each other, for the 3½-day program.

A full day of presentations by clinicians from a dozen different countries will comprise the Leonard Linkow Memorial Global Symposium taking place on Friday, Oct. 13. More than three dozen limited attendance seminars and hands-on workshops will supplement 20 hours of main podium presentations. A team program will include eight different presenters during two days. AAID will also broadcast a live surgery with simultaneous commentary from the surgeon, giving attendees the opportunity to ask questions during the procedure.

More information about the AAID 2017 Annual Educational Conference can be found online at www.aaid.com. Registration for the annual conference is open and those who register by Sept. 22 save $100 on the full registration fee for dentists. For more information, call the AAID at (312) 335-1550.
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